

REMARKS

Applicants respectfully request that the above-identified patent application be reexamined and reconsidered.

I. Introduction

Claims 1-15 and 24-31 are pending in the present application. In a September 29, 2003, Office Action, Claims 1-15 and 24-31 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,970,502 to Salkewicz et al. (hereinafter "Salkewicz et al."). While applicants believe that the previously presented claims were clearly allowable in view of the cited and applied reference, in order to advance the prosecution of this application, language changes have been made in order to make the claim language more particularly point out and distinctly claim the subject matter that applicants regard as the invention. Pursuant to 37 C.F.R. § 1.111 and for the reasons set forth below, applicants respectfully request reconsideration and allowance of this application.

For the following reasons, applicants respectfully submit that Claims 1-15 and 24-31 of the present application are not obvious over Salkewicz et al. because the cited and applied reference fails to teach or suggest a system and method for dynamically synchronizing a database stored on a server and client computer as claimed in the present application. Before discussing more detailed reasons for applicants' belief that all the claims of the present application are allowable, a brief description of the present invention and the cited references is presented.

The following discussion of the disclosed embodiments of applicants' invention and the teachings of the applied reference are not provided to define the scope or interpretation of any of applicants' claims. Instead, such discussed differences are provided to help the U.S. Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

A. Summary of the Present Invention

The present invention is directed to a method, system, and computer product for synchronizing a database either stored on a plurality of client computers, on a client computer and a server computer, or on a plurality of client computers and a server computer. Having duplicate databases allows users to access and manipulate data from one or more client computers that are communicatively connected to a server computer.

The method and system of the present invention also allows updates to databases while minimizing the amount of data transferred. More specifically, the present invention employs time relationships in client and server computers to reduce the amount of data transferred. An

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analysis of the time relationship is performed on data stored in databases to determine the type of download that is executed. For example, the server downloads a database file to the client, if the last access time of the client database is earlier than the creation time of the server database. Alternatively, the server selectively downloads individual data objects from the server database to the client database, if the last access time of the client database is not earlier than the creation time of the server database. In this way, the method and system of the present invention allow users to access and manipulate data stored in databases located on client and server computers while reducing the amount of data transferred during a database synchronization.

Another claimed aspect of the present invention provides a method for initializing duplicate databases. In one embodiment, the system deletes a server computer database if the server contains a database and if a received command dictates that the server database be deleted. In addition, the system copies a client computer database to the server if a received command dictates that the database be copied. This method prepares duplicate databases for a synchronization process, such as the synchronization process described above.

B. Summary of U.S. Patent No. 5,970,502 to Salkewicz et al.

Salkewicz et al. purportedly discloses a system and method for synchronizing databases. (Salkewicz et al., Col. 1, lines 7-10). More specifically, Salkewicz et al. discloses a system and method for synchronizing database copies existing on servers connected to a network. Storing database copies on a plurality of servers distributes the load of network connections between multiple computers. However, when multiple copies of a database exist, data integrity is more difficult to maintain as redundant copies must be kept identical. To maintain data integrity, the distributed servers communicate with one another and exchange information regarding updates to the database. Also, distributed locking schemes are employed to provide a single server with access to records when modifications are necessary. (Salkewicz et al., Col. 1, lines 30-46.)

In one embodiment, Salkewicz et al. discloses a method of selectively updating a database copy on a remote server. In making updates, the source database is divided into a plurality of segments, which contain the last modification time processed for each record. The destination server receives the segments and compares the last modification time of the source database with the destination database. If the source database has a last modification time that is earlier than or equal to the time in the destination database, the received segment is ignored. If the source database has a last modification time that is later than the destination database, the record is updated. Salkewicz et al. focuses on making individual database updates on servers

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with a method that does not disclose, teach, or suggest a system that utilizes one of two different types of download actions based on an examination of the time a server database was created.

II. Rejection of Claims 1-15 and 24-31 Under 35 U.S.C. § 103(a)

The Office Action rejected Claims 1-15 and 24-31 under 35 U.S.C. § 103(a) as being unpatentable over Salkewicz et al. The Office Action asserts that Salkewicz et al. discloses the majority of the elements of applicants' claims and that the non-disclosed element would have been obvious to a person of ordinary skill in the art at the time this invention was made. Applicants respectfully disagree. As described in more detail below, the cited reference fails to disclose or suggest certain elements of the independent and dependent claims. Applicants submit that it would not have been obvious to combine these elements with the teachings of Salkewicz et al. at the time the invention was made.

A. Claims 1 and 8

Claim 1 as amended reads as follows:

1. A method for dynamically synchronizing a duplicated database stored on a server and a client computer, wherein the client computer database comprises a last server access time and a plurality of data objects and the server computer database comprises a creation time and a plurality of data objects, comprising:

downloading the server computer database to the client computer, if the client computer database last server access time indicates a time that is earlier than a time indicated by the creation time of the server computer database;

selectively downloading data objects stored in the server computer database to the client computer database, if the client computer database last server access time indicates a time that is not earlier than a time indicated by the creation time of the server computer database;

receiving a user generated command for determining a database configuration;

deleting the server computer database if the server computer contains a database and if the user generated command dictates that the server computer database be deleted; and

copying a client computer database to the server computer, if the user generated command dictates that the client computer database be copied to the server computer.

As described above, Claim 1 recites a context for dynamically synchronizing a duplicated database that is "stored on a server and a client computer." Also, Claim 1 of the present application distinctly recites "selectively downloading data objects stored in the server computer database to the client computer database if the client computer database last server access time

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indicates a time that is not earlier than a time indicated by the creation time of the server computer database." Implementation of the present invention in a client/server environment permits synchronization of a database by a user using a client-based application. Typically, a client computer is defined as a point of entry with applications that handle user commands through a graphical interface. On the other hand, a server computer centralizes data storage and satisfies user commands through a client computer. In a client/server environment, a database and application logic exist to handle user commands on at least one client computer. The server computer stores a duplicated database and handles user commands received from the client computer.

The Office Action asserts that Salkewicz et al. discloses a method in a computer system for dynamically synchronizing a duplicated database stored on a server and a client computer. Further, the Office Action asserts that Salkewicz et al. teaches selectively downloading data objects stored in the server computer database to the client computer database if the client computer database last server access time indicates a time that is not earlier than a time indicated by the creation time of the server computer database. The Office Action admits that Salkewicz et al. does not specifically disclose "receiving a command for determining a database configuration." However, the Office Action asserts that the step of receiving a command for determining a database configuration would have been obvious to a person of ordinary skill in the art at the time the invention was made since Salkewicz et al. discloses a database modification request. Therefore, the Office Action asserts that Claim 1 is unpatentable in view of the teachings of Salkewicz et al.. For the following reasons, applicants respectfully disagree.

In contrast to the claims of the present application, Salkewicz et al. teaches updating multiple copies of a database located on a plurality of server computers using methods different than claimed in the present application. The Office Action asserts that Salkewicz et al. discloses a method for synchronizing a duplicated database stored on a server and a client computer and references Figures 1 and 5; Col. 2, lines 33-56, and Col. 6, lines 19-31, in support for the alleged disclosure of all the elements of Claim 1. However, the "source database" and "destination database" described at Col. 6, lines 19-31, of Salkewicz et al. refer to data existing only on server computers. A database existing on a client computer or any application logic serving the requirements of users on a client computer is not described. Thus, applicants initially point out that Salkewicz et al. does not disclose dynamically synchronizing a duplicated database "stored on a server and a client computer" as recited in Claim 1.

More importantly, in contrast to the language of Claim 1, Salkewicz et al. does not disclose a method for synchronizing a database that involves a selection between download

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techniques. As defined in Claim 1, applicants' claimed method is a combination that chooses between one of two different download techniques to synchronize databases in which the selection of the download technique is based on the state of a condition. More specifically, applicants' claimed method synchronizes duplicate databases by either (1) downloading a database to a client computer, or (2) selectively downloading data objects stored in the server computer database to the client computer database, depending on which of two possible states of a condition exist. In other words, the server downloads an entire database if one state exists, or selectively downloads individual objects if another state exists. The state of the condition that determines the type of download that is executed between the server and client is the result of a comparison between a "creation time" of the server database and an "access time" of the client database.

Conversely, Salkewicz et al. describes a database synchronization method between server computers where the "last modification" time stamp is used to determine if a segment will be transmitted between server computers. For instance, Salkewicz et al. states:

Rather than containing entire database records, the segments contain only 'instance identification' information, such as an instance number, sequence number, or other information indicating the **last modification** processed for the record. For example, a sequence stamp may indicate the date and time of the **last modification**.

[Salkewicz et al., Col. 10, lines 26-30 (emphasis added).] Although a time stamp comparison is involved, the Salkewicz et al. disclosure is limited to a method of analyzing a last modified time stamp to determine if a segment should be transmitted. Applicants respectfully submit that this action does not suggest a method of distinguishing between two options, namely, (1) "downloading the server computer database to the client computer" or (2) "selectively downloading data objects stored in the server computer database to the client computer database" Stated differently, the Salkewicz et al. method of updating a segment only when a segment is modified does not suggest a method that employs one of two different types of download actions, depending on the state of a condition. Further, applicants submit that there is no basis for concluding that these elements would have been obvious to one of ordinary skill in the art at the time this invention was made in view of the teachings of Salkewicz et al.. The Office Action simply has not made a *prima facie* showing of obviousness.

For at least the above-mentioned reasons, applicants respectfully submit that the Office Action has not established a *prima facie* case of obviousness with respect to Claim 1 and

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respectfully request that the rejection of Claim 1 under 35 U.S.C § 103(a) be withdrawn and Claim 1 allowed.

Since Claims 2-5 depend from Claim 1, and Claims 6 and 7 are, respectively, computer-readable medium and multiple dependent apparatus claims that depend from Claims 1-5, the analysis applied to Claim 1 also applies to these claims. Therefore, applicants respectfully submit that Claims 2-7 are in condition for allowance for the same reasons as Claim 1. Further, applicants submit that the dependent claims are patentable for additional reasons described below.

Applicants respectfully submit that independent Claim 8 is also in condition for allowance. Like Claim 1, Claim 8 recites dynamically synchronizing a duplicated database that is "stored on a server and a client computer." As mentioned above, Salkewicz et al. fails to disclose a database existing on a client computer or any application logic serving users of client computers. More importantly, like Claim 1, Claim 8 recites two different download actions including "selectively downloading data objects stored in the server computer database to the client computer database if the client computer database last server access time indicates a time that is not earlier than a time indicated by the creation time of the server computer database." As stated above, Salkewicz et al. fails to disclose a method that employs two different types of download actions, the choice of which depends on the state of a condition.

For at least the above-mentioned reasons, applicants respectfully submit that the Office Action has not established a *prima facie* case for a Section 103 rejection of Claim 8 and respectfully request that the rejection of Claim 8 be withdrawn and this claim allowed.

Since Claims 9-13 depend from Claim 8, and Claims 14-15 are, respectively, computer-readable medium and multiple dependent apparatus claims that depend from Claims 8-13, the analysis applied to Claim 8 also applies to these claims. Therefore, applicants respectfully submit that Claims 9-15 are in condition for allowance for the same reasons as Claim 8. Further, applicants submit that the dependent claims are patentable for additional reasons described below.

B. Claims 2-7 and 9-15

Claims 2 and 9 add the additional recitation of "updating the last server access time stored in the client computer database, wherein the updated last server access time corresponds to a clock time maintained by the server computer." The Office Action asserts that Salkewicz et al. teaches updating the last server access time stored in the client computer database, wherein the updated last server access time corresponds to a clock time maintained by the server

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computer. As discussed above, Salkewicz et al. teaches obtaining the last modification time processed for a record. Updating the last server access time as recited in Claims 2 and 9 is not the same as obtaining a last modification time as disclosed in Salkewicz et al. Accordingly, the cited reference fails to teach or suggest the additional element recited in Claims 2 and 9 and, thus, applicants assert that these claims are also allowable for this reason.

Claims 3 and 10 add the recitation of "transmitting, from the client computer to the server computer, the last server access time stored on the client computer database." The Office Action asserts that Salkewicz et al. teaches transmitting, from the client computer to the server computer, the last server access time stored on the client computer database. As discussed above, Salkewicz et al. does not teach synchronizing a duplicated database between a client computer and server computer. Accordingly, the cited reference fails to teach or suggest the additional element recited in Claims 3 and 10 and, thus, applicants assert that these claims are also allowable for this reason.

Claims 4 and 11 add the recitation of "determining if the last server access time of one data object stored in the server computer database indicates a time later than a time indicated by the client computer database last server access time." The Office Action asserts that Salkewicz et al. teaches determining if the last server access time of one data object stored in the server computer database indicates a time later than a time indicated by the client computer database last server access time. As discussed above, Salkewicz et al. teaches obtaining the last modification time processed for a record. Determining the last server access time as claimed is not the same as obtaining a last modification time as disclosed in Salkewicz et al. Accordingly, the cited reference fails to teach or suggest the additional element recited in Claim 4 and 11 and, thus, these claims are submitted to be allowable for this additional reason.

With respect to Claims 5, 12, and 13, the cited reference does not disclose or suggest a method of "downloading the server computer database to the client computer, if the client computer database last server access time is not within a predetermined period of time from a clock time maintained by the server computer." As described above, the Salkewicz et al. disclosure is limited to a system and method that examines a time stamp to determine if a segment should be transmitted. Applicants also respectfully submit that an examination of a time stamp does not suggest a method that is even related to a method that downloads a database if a time stamp is not within a "*time period*." Salkewicz et al. completely fails to describe or suggest a method that is even related to this claimed subject matter. Thus, Claims 5, 12, and 13 are submitted to also be allowable for this reason.

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C. Claims 24-26

Claim 24 reads as follows:

24. A method for initializing a database system having one client computer and a server computer, comprising:
receiving a command for determining a database configuration;
determining if the server computer contains a database;
deleting the server computer database if the server computer contains a database and if the user generated command dictates that the server computer database be deleted; and
copying a client computer database to the server computer, if the user generated command dictates that the client computer database be copied to the server computer.

Applicants respectfully submit that Claims 24-26 are also in condition for allowance. Claim 24 recites a context for initializing a database system "having one client computer and a server computer." As described above, Salkewicz et al. teaches updating database copies only located on server computers using methods different than claimed in the present application. Since Salkewicz et al. does not teach initiating a database system between a client computer and server computer as claimed in the present application, the rejection of Claim 24 is submitted to be improper.

More importantly, in contrast to the recitations of Claim 24, Salkewicz et al. does not receive a command or initiate different database systems depending on the command issued. The present invention synchronizes databases either stored on a plurality of client computers, on a client computer and a server computer, or on a plurality of client computers and a server computer. The choice between different configurations is determined by a user who issues commands when initiating the system. As defined in Claim 24, applicants' claimed method is a combination that receives a command for determining a database configuration and deletes "the server computer database if the server computer contains a database and if the received command dictates that the server computer database be deleted" and copies "a client computer database to the server computer, if the received command dictates that the client computer database be copied to the server computer." In contrast, Salkewicz et al. only teaches synchronizing databases between server computers and does not support receiving user-issued commands from a client computer. Also, Salkewicz et al. does not teach or suggest a method that combines two elements, namely, (1) "deleting the server computer database if the server computer contains a database and if the received command dictates that the server computer database be deleted" and (2) "copying a client computer database to the server computer, if the

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received command dictates that the client computer database be copied to the server computer." Stated differently, the Salkewicz et al. method does not teach or suggest a method that initiates different database configurations depending on the receipt of a user-generated command.

For at least the above-mentioned reasons, applicants respectfully submit that the Office Action has not established a *prima facie* case in support of the obviousness rejection of Claim 24. Applicants respectfully request that the rejection of Claim 24 be withdrawn and Claim 24 be allowed.

Since Claims 25 and 26 are computer-readable medium and apparatus claims having language that parallels the language of Claim 24, the analysis applied to Claim 24 also applies to these claims. Therefore, applicants respectfully submit that Claims 25-26 are in condition for allowance for the same reasons as Claim 24.

D. Claims 27-31

With regard to Claim 27, applicants respectfully submit that this claimed method is not taught or suggested by the cited reference. Claim 27 recites a combination of actions including "updating the entire client computer database with the server computer database if the synchronization data includes the server computer database; and updating selective client computer database data objects, if the synchronization data only includes corresponding selective server data objects." Salkewicz et al. does not disclose or suggest the alternative actions of (1) "updating the entire client computer database" and (2) "updating selective client computer database data objects," based on the nature of data being synchronized.

For at least the above-mentioned reasons, applicants respectfully submit that the Office Action has not established a *prima facie* case in support of a Section 103 rejection of Claim 27. Applicants respectfully request that the rejection of Claim 27 be withdrawn and Claim 27 be allowed.

Since Claims 28-29 depend from Claim 27, and Claims 30-31 are computer-readable medium and multiple dependent apparatus claims that depend from Claims 27-29, the analysis applied to Claim 27 also applies to these claims. Therefore, applicants respectfully submit that Claims 28-31 are in condition for allowance for the same reasons as Claim 27. Further, applicants submit that the dependent claims are patentable for additional reasons described below.

Claim 28 adds the recitation of "receiving an updated last server access time from the server computer, wherein the updated last server access time corresponds to a clock time maintained by the server computer." The Office Action asserts that Salkewicz et al. teaches

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updating the last server access time stored in the client computer database, wherein the updated last server access time corresponds to a clock time maintained by the server computer. As discussed above, Salkewicz et al. teaches obtaining the last modification time processed for a record. Updating the last server access time as claimed is not the same as obtaining a last modification time as disclosed in Salkewicz et al. Accordingly, the cited reference fails to teach or suggest the additional element recited in Claim 28. Thus, applicants submit that Claim 28 is also allowable for this reason.

Claim 29 adds the recitation of "transmitting, from the client computer to the server computer, the last access time stored on the client computer database." The Office Action asserts that Salkewicz et al. teaches transmitting, from the client computer to the server computer, the last access time stored on the client computer database. As discussed above, Salkewicz et al. does not teach synchronizing databases existing on a client computer and server computer as claimed in the present application. Accordingly, the cited reference fails to teach or suggest the additional element recited in Claim 29. Thus, applicants submit that Claim 29 is also allowable for this reason.

CONCLUSION

In view of the remarks above, applicants respectfully submit that the present application is in condition for allowance. Reconsideration and reexamination of the application and allowance of the claims at an early date are solicited. If the Examiner has any questions or comments concerning this matter, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,
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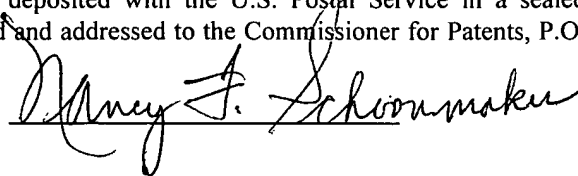


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